CLAIMS

1. A signal detecting method of detecting an output signal which indicates data information included at least two sideband waves from an input signal having a carrier wave and the at least two sideband waves which accompany the carrier wave,

said signal detecting method comprising:

a cutting process of cutting the sideband wave located on one of a high-frequency side and a low-frequency side as compared to the carrier wave, from the at least two sideband waves; and

a squared-detecting process of outputting the output signal by squared-detecting the input signal in which the one of the sideband waves is cut.

2. The signal detecting method according to claim 1, wherein

said signal detecting method further comprises a frequency converting process of converting a frequency of the input signal, and

the one of the sideband waves is cut from the input signal whose frequency is converted in said cutting process.

3. The signal detecting method according to claim 2, wherein the frequency is converted to make it relatively low in said frequency converting process.

4. The signal detecting method according to claim 2, wherein

said signal detecting method further comprises a judging process of

judging whether or not the frequency is higher than a predetermined value, and

if it is judged in said judging process that the frequency is higher than the predetermined value, the frequency is converted in said frequency converting process.

5. The signal detecting method according to claim 1, wherein the carrier wave and a first-order sideband wave are squared-detected, out of the input signal in which the one of the sideband waves is cut, in said squared-detecting process.

6. The signal detecting method according to claim 5, wherein if an amplitude of the carrier wave is V_0, a modulation index is mf_1, an angular frequency of the carrier wave is ω_0, and a difference in the angular frequency between the carrier wave and the first order sideband wave is ω_p, the first sideband wave is squared-detected, with it expressed by $(V_0mf_1/2)\times\cos((\omega_0+\omega_p)t)$ or $-(V_0mf_1/2)\times\cos((\omega_0-\omega_p)t)$ at a time point of t.

7. The signal detecting method according to claim 1, wherein the sideband wave on the high-frequency side is cut out of the at least two sideband waves in said cutting process.

8. The signal detecting method according to claim 1, wherein

the data information is recorded in a recording medium, and

said signal detecting method further comprises a signal obtaining process of obtaining the input signal by applying a high-frequency electric

field to the recording medium and by applying an alternating electric field with a lower frequency than that of the high-frequency electric field.

9. The signal detecting method according to claim 8, wherein the recording medium comprises a recording layer including a dielectric substance.

10. A signal detecting apparatus for detecting an output signal which indicates data information included at least two sideband waves from an input signal having a carrier wave and the at least two sideband waves which accompany the carrier wave,

said signal detecting apparatus comprising:

a cutting device for cutting the sideband wave located on one of a high-frequency side and a low-frequency side as compared to the carrier wave, from the at least two sideband waves; and

a squared-detecting device for outputting the output signal by squared- detecting the input signal in which the one of the sideband waves is cut.

11. An information reproducing apparatus for reproducing data information recorded in a recording medium,

said information reproducing apparatus comprising:

a reading device for reading a reproduction signal having a carrier wave and at least two sideband waves which accompany the carrier wave and which include the data information, from the recording medium;

a cutting device for cutting the sideband wave located on one of a

high-frequency side and a low-frequency side as compared to the carrier wave, from the at least two sideband waves;

a squared-detecting device for squared-detecting the reproduction signal in which the one of the sideband waves is cut; and

a reproducing device for extracting and reproducing the data information from the squared-detected reproduction signal.

12. The information reproducing apparatus according to claim 11, wherein said reading device reads the reproduction signal by applying a high-frequency electric field to a recording layer of the recording medium and by applying an alternating electric field with a lower frequency than that of the high-frequency electric field.

13. The information reproducing apparatus according to claim 11, wherein

said information reproducing apparatus further comprises a frequency converting device for converting a frequency of the reproduction signal, and

said cutting device cuts the one of the sideband waves from the reproduction signal whose frequency is converted.

14. The information reproducing apparatus according to claim 11, wherein the recording medium comprises a recording layer including a dielectric substance.

15. The information reproducing apparatus according to claim 11,

wherein said information reproducing apparatus reproduces the data information on the basis of nonlinear dielectric microscopy.

16. An information reproducing method of reproducing data information recorded in a recording medium,

said information reproducing method comprising:

a reading process of reading a reproduction signal having a carrier wave and at least two sideband waves which accompany the carrier wave and which include the data information, from the recording medium;

a cutting process of cutting the sideband wave located on one of a high-frequency side and a low-frequency side as compared to the carrier wave, from the at least two sideband waves;

a squared-detecting process of squared-detecting the reproduction signal in which the one of the sideband waves is cut; and

a reproducing process of extracting and reproducing the data information from the squared-detected reproduction signal.